

Remarks

By the foregoing amendments, Applicants have amended claims 1and 13. Applicants respectfully submit that no new matter was added by the amendment, as all of the amended matter was either previously illustrated or described in the drawings, written specification, and/or claims of the present application. (See, Pars. 18-20; FIGS. 3-5). Entry of the amendment and favorable consideration thereof is earnestly requested.

The Examiner has rejected claims 1-7 and 10-13 in light of U.S. Patent No. 6,540,669 to Abe et al. ("Abe") in view of U.S. Patent No. 6,749,560 to Konstorum et al. ("Konstorum"). Applicants respectfully request reconsideration of these rejections in light of the foregoing amendments and the following remarks.

Claim 1, as amended, recites an endoscope insertion shaft that comprises a tubular member that includes a continuous wall. The endoscope insertion shaft also comprises a sheath including, among other layers, a barrier layer that jackets the tubular member and forms a seal between the tubular member and a braided layer along the length of the tubular member.

Claim 13, as amended, also recites an endoscope insertion shaft that comprises a tubular member that includes a continuous wall. The endoscope insertion shaft further comprises a barrier layer jacketing the tubular member to form a seal extending along the length of the tubular member around the continuous wall of the tubular member.

Thus, claims 1 and 13 both require a continuous wall and a barrier layer that jackets the tubular member and forms a seal along the length of the tubular member. Abe does not disclose at least these elements of the claims. Konstorum does not disclose at least the element that a barrier layer jackets the tubular member and forms a seal along the length of the tubular member. Thus, none of the cited references

disclose each and every limitation of the claims, and therefore, do not anticipate the claimed invention.

The claimed invention is also not obvious in light of the cited references. One of ordinary skill in the art would never have been motivated to modify the device disclosed by Abe to include a barrier layer as claimed because Abe teaches away from use of such a barrier layer. Second, one of ordinary skill in the art would never have been motivated to incorporate elements of Konstorum into the device of Abe because there is no suggestion that such a combination would work. In fact, the combination would only work if one ignored the express teaching of Abe.

The Examiner has submitted that Abe discloses an endoscope insertion shaft comprising "a barrier layer 231 comprising a polyester wrap disposed between [a] tubular member and [a] braided layer and jacketing the tubular member to form a seal therebetween (see Figs. 3-5 and Col. 6, Lines 22-30)." (Official Action 9/14/07, p. 3). The Examiner further submitted that "the features upon which applicant relies [in the previous response] (i.e., a continuous seal formed [along] the length of the insertion shaft) are not recited in the rejected claim(s)." (Official Action 9/14/07, p. 4). As shown above, Applicants have amended claims 1 and 13 to clarify that the barrier layer forms a seal along the length of the tubular member. This feature is not disclosed, taught, or suggested by the cited references, and in fact, Abe teaches away from such an arrangement.

First, the coating layer 231 does not provide a seal between the braided-wire reticular tube 22, and the helical coil 21. The coating layer 231 is formed around at least one of the fine wires 23 that are braided to form the reticular tube 22. This is clearly illustrated in Figure 3 of Abe. Abe explicitly states that the purpose of the coating layer 231 is to create a strong, adhesive bond between the reticular tube 22 and the outer cover 3. (Abe, col. 5, lines 21-35). Abe does not disclose, teach, or suggest that the coating layer 231 provides any kind of seal or barrier. Thus, Abe does not

disclose a sealing barrier layer between the braided layer (reticular tube 22) and the tubular member (helical coil 21).

One of ordinary skill in the art would never have been motivated to include such a sealing barrier layer because doing so would interfere with the outer cover 3 (sometimes comprised of inner layer 32) forming protrusions 31 that extend through gaps in the reticular tube 22 to reach the periphery of the helical coil 21. As shown in figures 2 and 5 and described at column 7, lines 26-37 and column 10, lines 56-65 of Abe, the protrusions 31 that are part of outer cover 3 extend into the gaps 25 of the helical coil 21. The purpose of the protrusions 31 is to securely anchor the outer cover 3 (sometimes via the inner layer 32) to the core body 2, which comprises the reticular tube 22 and the helical coil 21. If one were to interpose a barrier layer to create a seal between the reticular tube 22 and the helical coil 21, these protrusions would be prevented from entering the gaps 25. This would eliminate the anchoring bond between the outer cover 3 and the core body 2, which goes against the express teaching of Abe. Thus, the claimed invention is not obvious in light of the cited references because Abe clearly teaches against including a sealing barrier layer between the braided layer and the tubular member.

Next, one of ordinary skill in the art would never have been motivated to incorporate a tube 40 as disclosed in Konstorum into the device of Abe to replace the helical coil 21. In order to make such a device function properly, one would have to make modifications that contravene the express teaching of Abe.

One of the primary objects of the device disclosed by Abe is improved durability in order to prevent the peeling of the outer cover off of the core of the device. (Abe, col. 1, lines 53-65). This object is achieved in part by allowing the outer cover to form the protrusions 31 that extend into the gaps 25 of the helical coil 21. As clearly illustrated in figures 3 and 5, however, the protrusions 31 are far smaller than the gaps 25 and would not hinder the flexing of the device by preventing the gaps 25 from contracting during flex.

If the helical coil 21 of Abe were replaced by the tube 40 of Konstorum, however, the protrusions 31 would severely impede the proper flexing of the tube 40. Figure 5 of Konstorum shows the functioning of the slots to increase the flexibility of the tube 40. The slots 46 on the inside of the curve are completely closed. If such a tube were used in the device of Abe, the protrusions 31, which would extend into the slots 46, would clearly impede the functioning of the slots by preventing them from closing during flex. In order to make this device work properly, one would have to eliminate the protrusions 31 altogether. However, simply doing away with the protrusions 31 would be contrary to the express teaching of Abe, as discussed above. Thus, one of ordinary skill in the art would never have been motivated to use a tube such as that described in Konstorum in the device of Abe. Such a combination would not function properly and the modifications necessary to make it function properly would be contrary to the express teaching of Abe. For at least this additional reason, the claimed invention is not obvious.

Therefore, Applicants respectfully submit that the claimed invention is not obvious in light of the cited references and is patentable. Applicants further submit that all claims pending in the application are in condition for allowance and early notice that effect is earnestly requested.

Respectfully submitted,

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